National Institute of Standards and Technology

NVLAP®

National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation

Revised 4/3/2003

CALIBRATION LABORATORIES **NVLAP LAB CODE 200502-0**

PYROMATION INC. METROLOGY LABORATORY
5211 Industrial Road
Fort Wayne, IN 46825-5152
Mr. Chris Moritz
Phone: 260-484-2580 Fax: 260-482-6805
E-Mail: chris@pyromation.com
URL: http://www.pyromation.com

NVLAP Code: 20/A01 ANSI/NCSL Z540-1-1994; Part 1 Compliant

DC/LOW FREQUENCY

NVLAP Code: 20/E05
DC Resistance

Range in ohms	*Best Uncertainty (±) in ohms*[note 1]	*Remarks*
1	0.006	Simulated
10	0.007	Simulated
100	0.018	Simulated
1 k	0.122	Simulated
10 k	4	Simulated
100 k	35	Simulated
1 M	347	Simulated

September 30, 2003

Effective through

For the National Institute of Standards and Technology

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10 M	4 k	Simulated
100 M	35 k	Simulated
10	0.0008	Measured
100	0.0075	Measured
1 k	0.06	Measured
10 k	0.6	Measured
100 k	8.3	Measured
1 M	85	Measured
10 M	4.7 k	Measured
100 M	174 k	Measured

NVLAP Code: 20/E05
DC Current

Range	*Best Uncertainty (±)*[note 1]	*Remarks*
0 to 100 mA	0.005 mA	Simulated
10 mA	0.006 mA	Measured
100 mA	0.063 mA	Measured

September 30, 2003

Effective through

For the National Institute of Standards and Technology

National Institute of Standards and Technology

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1 A	0.97 mA	Measured
3 A	4.2 mA	Measured
Service provided at customer location.		
0 to 24 mA	0.05 mA	Simulated
0 to 24 mA	0.06 mA	Measured

NVLAP Code: 20/E06
DC Voltage

Range	***Best Uncertainty (±) in mV***[note 1]	***Remarks***
0 to 100 mV	0.003	Simulated
100 mV	0.0058	Measured
1 V	0.031	Measured
10 V	0.32	Measured
100 V	4.6	Measured
1000 V	54	Measured

September 30, 2003

Effective through

For the National Institute of Standards and Technology

National Institute of Standards and Technology

NVLAP®

National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation

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Service provided at customer location.

0 to 100 mV	0.09	Simulated
0 to 90 mV	0.06	Measured

THERMODYNAMICS

NVLAP Code: 20/T07
Resistance Thermometry

Range in °C	*Best Uncertainty (±)[note 1]*	*Min. Overall Length*	*Remarks*
-196	0.03°C	12 in	Comparison Measurement against PRT
-75	0.03°C	12 in	Comparison Measurement against PRT
-40 to 230	0.04°C	6 in	Comparison Measurement against PRT
230 to 420	0.04°C	18 in	Comparison Measurement against PRT
420 to 660	0.45°C	18 in	Comparison Measurement against S Thermocouple
-196	0.013°C	12 in	Comparison Measurement against SPRT

September 30, 2003

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National Voluntary Laboratory Accreditation Program

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-75	0.014°C	12 in	Comparison Measurement against SPRT
-40 to 230	0.026°C	6 in	Comparison Measurement against SPRT
230 to 420	0.026°C	18 in	Comparison Measurement against SPRT
0.01	2.8 mk	18 in	Fixed Point (TPW)
29.7646	3.5 mk	12 in	Fixed Point (MPGa)

NVLAP Code: 20/T07
Resistance Thermometry/Digital/Analog Temperature Indicators

Range in °C	*Best Uncertainty (±) in °C*[note 1]	*Type*	*Remarks*
-200 to 660	0.02	PT100	Simulated
-270 to 1000	0.06	E	Simulated
-210 to 1200	0.07	J	Simulated
-270 to 1372	0.08	K	Simulated
-270 to 1300	0.12	N	Simulated
-270 to 400	0.08	T	Simulated
0 to 1820	0.28	B	Simulated

September 30, 2003

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National Institute of Standards and Technology

NVLAP®

National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
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Revised 4/3/2003

CALIBRATION LABORATORIES **NVLAP LAB CODE 200502-0**

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-50 to 1768	0.46	R	Simulated
-50 to 1768	0.43	S	Simulated
-200 to 660	0.02	PT100	Measured
-270 to 1000	0.04	E	Measured
-210 to 1200	0.05	J	Measured
-270 to 1372	0.05	K	Measured
-270 to 1300	0.08	N	Measured
-270 to 400	0.05	T	Measured
0 to 1820	0.04	B	Measured
-50 to 1768	0.19	R	Measured
-50 to 1768	0.11	S	Measured

Service provided at customer location

-270 to 1000	2.0	E	Measured/Simulated
-210 to 1200	2.2	J	Measured/Simulated
-270 to 1372	2.3	K	Measured/Simulated
-270 to 1300	2.6	N	Measured/Simulated

September 30, 2003

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National Institute of Standards and Technology

NVLAP®

National Voluntary Laboratory Accreditation Program

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Scope of Accreditation

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-270 to 400	2.1	T	Measured/Simulated
0 to 1820	2.7	B	Measured/Simulated
-50 to 1768	3.2	R	Measured/Simulated
-50 to 1786	3.2	S	Measured/Simulated
-150 to 550	1.1	PT1002W	Measured/Simulated
-150 to 550	1.0	PT1003W	Measured/Simulated
-150 to 550	0.7	PT1004W	Measured/Simulated

NVLAP Code: 20/T08
Thermocouples - Type E

Range in °C	*Best Uncertainty (±) °C[note 1]*	*Min. Overall Length*	*Remarks*
-196	0.11	12 in	Comparison Measurement against PRT
-75	0.07	12 in	Comparison Measurement against PRT
-40 to 230	0.07	6 in	Comparison Measurement against PRT
230 to 420	0.07	18 in	Comparison Measurement against PRT
420 to 1000	0.67	20 in	Comparison Measurement against S Thermocouple

September 30, 2003

Effective through

For the National Institute of Standards and Technology

National Institute of Standards and Technology

NVLAP®

National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation

Revised 4/3/2003

CALIBRATION LABORATORIES **NVLAP LAB CODE 200502-0**

PYROMATION INC. METROLOGY LABORATORY

Thermocouples - Type J			
-196	0.10	12 in	Comparison Measurement against PRT
-75	0.07	12 in	Comparison Measurement against PRT
-40 to 230	0.08	6 in	Comparison Measurement against PRT
230 to 420	0.08	18 in	Comparison Measurement against PRT
420 to 1100	0.68	20 in	Comparison Measurement against S Thermocouple
1100 to 1200	0.90	20 in	Comparison Measurement against S Thermocouple
Thermocouples - Type K			
-196	0.14	12 in	Comparison Measurement against PRT
-75	0.09	12 in	Comparison Measurement against PRT
-40 to 230	0.08	6 in	Comparison Measurement against PRT

September 30, 2003

Effective through

For the National Institute of Standards and Technology

National Institute of Standards and Technology

NVLAP®

National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation

Revised 4/3/2003

CALIBRATION LABORATORIES **NVLAP LAB CODE 200502-0**

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230 to 420	0.08	18 in	Comparison Measurement against PRT
420 to 1100	0.68	20 in	Comparison Measurement against S Thermocouple
1100 to 1200	0.90	20 in	Comparison Measurement against S Thermocouple
1200 to 1372	1.53	30 in	Comparison Measurement against B Thermocouple
Thermocouples - Type N			
-196	0.20	12 in	Comparison Measurement against PRT
-75	0.12	12 in	Comparison Measurement against PRT
-40 to 230	0.12	6 in	Comparison Measurement against PRT
230 to 420	0.12	18 in	Comparison Measurement against PRT
420 to 1100	0.68	20 in	Comparison Measurement against S Thermocouple

September 30, 2003

Effective through

For the National Institute of Standards and Technology

National Institute of Standards and Technology

NVLAP®

National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

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Revised 4/3/2003

CALIBRATION LABORATORIES **NVLAP LAB CODE 200502-0**

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1100 to 1200	0.91	20 in	Comparison Measurement against Thermocouple
1200 to 1300	1.21	30 in	Comparison Measurement against B Thermocouple
Thermocouples - Type T			
-196	0.17	12 in	Comparison Measurement against PRT
-75	0.09	12 in	Comparison Measurement against PRT
-40 to 230	0.11	6 in	Comparison Measurement against PRT
230 to 420	0.11	18 in	Comparison Measurement against PRT
Thermocouples - Type B			
200 to 420	1.00	18 in	Comparison Measurement against PRT
420 to 1100	0.84	20 in	Comparison Measurement against S Thermocouple

September 30, 2003

Effective through

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National Institute of Standards and Technology

NVLAP®

National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
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1100 to 1200	0.92	20 in	Comparison Measurement against S Thermocouple
1200 to 1450	1.72	30 in	Comparison Measurement against B Thermocouple
Thermocouples - Type R			
-40 to 230	0.44	6 in	Comparison Measurement against PRT
230 to 420	0.44	18 in	Comparison Measurement against PRT
420 to 1100	0.71	20 in	Comparison Measurement against S Thermocouple
1100 to 1200	0.93	20 in	Comparison Measurement against S Thermocouple
1200 to 1450	1.73	30 in	Comparison Measurement against B Thermocouple
Thermocouples - Type S			
-40 to 230	0.42	6 in	Comparison Measurement against PRT
230 to 420	0.42	18 in	Comparison Measurement against PRT

September 30, 2003

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420 to 1100	0.71	20 in	Comparison Measurement against S Thermocouple
1100 to 1200	0.93	20 in	Comparison Measurement against S Thermocouple
1200 to 1450	1.72	30 in	Comparison Measurement against B Thermocouple

1. Represents an expanded uncertainty using a coverage factor, k=2.

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